

## BRITISH GEOMORPHOLOGICAL RESEARCH GROUP PUBLICATIONS

## TECHNICAL BULLETINS

Published by GeoBooks on behalf of the BGRG, the series has been overtaken by the new *Technical and Software Bulletins*. However, a limited number of copies are still available at £3.00 each to members of BGRG. Write to, telephone or fax Professor David Thomas, at Department of Geography, The University of Sheffield, Sheffield, S10 2TN, UK, with a cheque (in Sterling payable on a London bank)/postal order/VISA number or official order. There is (presently) no VAT on books and post and packing will be £3.00 per consignment.

- TB7 Field methods for hillslope description. L. B. Leopold and T. Dunne, 1970
- TB8 The measurement of soil frost-heave in the field. P. A. James, 1971
- TB10 An instrument system for shore process studies. R. M. Kirk, 1973
- TB11 Slope profile study. A. Young with D. Brunnsden and J. B. Thornes, 1974
- TB12 Electrochemical and fluorometric tracer techniques for streamflow measurements. M. Church, 1974
- TB13 The measurement of soil moisture, L. F. Curtis and S. T. Trudgill, 1975
- TB14 Drainage basin morphometry. V. Gardiner, 1975
- TB15 The use of electrode instrumentation for water analysis. A. M. C. Edwards, McDonald and Petch, 1975
- TB16 Instruments for measuring solid creep, E. W. Anderson and B. L. Finlayson, 1975
- TB17 Shorter Technical Methods (I) Including small scale slopes, a crest stage recorder, rock weight loss and organic content. 1975
- TB19 An instrument system for measuring soil movement. B. L. Finlayson and H. A. Osmaston, 1977
- TB21 An automatic fluid-scanning switch tensiometer system. T. P. Burt, 1978
- TB22 Introduction to pollen analysis. R. L. Jones and P. R. Cundill, 1978
- TB23 HYDRODAT: Fortran programs for hydrological data. K. J. Beven and J. L. Callen, 1979
- TB24 Shorter Technical Methods (III) Including clast orientations, bed material, water sampling and slope profiling. 1979
- TB25 Solid aggregate stability tests for the geomorphologists. I. C. Grieve, 1979
- TB26 A manual for lichenometry. W. W. Lock, J. T. Andrews and P. J. Webber, 1979
- TB27 An open-sided field direct shear box. M. P. Chandler, D. C. Parker and M. J. Selby, 1981
- TB28 Palaeohydrology of river basins. M. Church *et al.*, 1981
- TB29 Shorter Technical Methods (IV) Including an erosion meter, freeze sampling, the contour gauge, bed material and alkalinity, 1981
- TB30 Methods of locating slip surfaces in landslides. J. N. Hutchinson, 1982
- TB31 An economical data logging system for field experiments. J. A. A. Jones *et al.*, 1984
- TB32 Two microweight loss techniques for use in hillslope studies. R. W. Crabtree and S. T. Trudgill, 1984
- TB33 Shorter Technical Methods (V) Including lichenometry, profiling, small-scale changes, water sampling and tensiometer. 1984
- TB34 An introduction to data logging. A. C. Armstrong and W. B. Whalley, 1985
- TB35 An annotated bibliography of environmental reconstruction by SEM, 1962–1985. P. A. Bull, W. B. Whalley and A. W. Magee, 1986
- TB36 Shorter Technical Methods (VI) 1987.

## CLASSIC LANDFORM SERIES

Published jointly by the BGRG and GA, this series consists of concise and informative guides to examples of classic landforms in areas of scenic beauty and scientific interest. Maps, diagrams, photographs and a glossary are included plus information on access, safety and viewpoints. These are also priced at £3.00 and can be ordered from the GA at 343 Fulwood Road, Sheffield, S10 3BP, UK.

CL4 The Weald. 1984. D. A. Robinson and R. B. G. Williams

CL5 The South Devon Coast. 1986. D. Mottershead.

CL6 The North Devon Coast. 1986. P. Keen

CL7 The Gower Coast. 1987. E. M. Bridges

CL9 The White Peak. 1988. R. Dalton, H. Fox and P. Jones

CL10 The Northern Dales. 1989. E. Pounder

CL11 The Dark Peak. 1990. R. Dalton, H. Fox and P. Jones

CL12 The North Norfolk Coast. 1990. E. M. Bridges

CL13 The Brecon Beacons. 1992. R. Shakesby

## RESEARCH MONOGRAPHS

A short series of books covering more detailed material than is contained in the Technical Bulletins. These are priced at £10.00 and can be ordered from The University of Sheffield, as above.

RM1 Soil Pipes and Pipeflow: A Hydrological Study in Upland Wales. K. Gilman and M. D. Newson

RM2 Water Rock Interactions: A case study in a very low grade metamorphic shale catchment in the Ardennes, NW Luxembourg. J. M. Verstraten

RM3 The Nature of Soil Piping: a review of research. J. A. A. Jones

RM4 Periglacial Mass Wasting: a review of research. C. Harris

## EARTH SURFACE PROCESSES AND LANDFORMS

**Managing Editor:** Professor M. J. Kirkby, School of Geography, University of Leeds, UK

**BGRG Editor:** Dr T. Spencer, Department of Geography, University of Cambridge, UK

**Book Review Editor:** Dr K. S. Richards, Department of Geography, University of Cambridge, UK

## TECHNICAL AND SOFTWARE BULLETIN

**Editor:** Professor J. Hardisty, Department of Geography, The University of Hull, HU6 7RX, UK

**Aims and Scope**

*Earth Surface Processes and Landforms* provides a journal for the publication of research papers on all aspects of geomorphology interpreted in its widest

sense. The subject matter includes the following topics in pure and applied geomorphology. The annual *Technical and Software Bulletin* includes papers and disk-based programs and datasets which support the main journal.

\* Processes \* Landforms \* Soils and Weathering \*  
Environments \* Applied Geomorphology

## SYMPOSIA SERIES

Published by Wiley on behalf of the BGRG, the following titles are available and should be ordered from Wiley.

**Geomorphology and Sedimentology of Lakes and Reservoirs.**

Edited by J. McManus and R. W. Duck

Geologically, lakes are transient features since they begin to fill with sediments from the day they are created. The processes and rates of sedimentation vary in their relative importance through time in any single basin. They are controlled by both climatic and catchment characteristics.

In a series of state-of-the-art contributions, an international authorship draws attention to a wide

spectrum of topics. These range from geochemical analysis using the relatively short-lived Chernobyl fallout identification and tracing, to long-term accretion studies of Pleistocene rhythmities.

Within this range may be found practical analyses of reservoir lifetime assessment and capacity recovery; effects of urbanization on sedimentation using heavy metals to trace industrial evolution; examination of accretion rates in the pristine mountains of British Columbia; studies in late-glacial deposition in the lakes of North Wales and in the Grampian Mountains of Scotland. Many contributions deal with sites in the British Isles and North America, but significant chapters address problems from Middle Eastern countries.

### **Landscape Sensitivity**

Edited by D. S. G. Thomas and R. J. Allison

Environmental change has been a topic of geomorphological research for many years, with its importance increasingly recognized today. The sensitivity of landscapes to environmental change is a key concern to scientists and policy-makers. The book takes a broad stance in order to link individual systems and improve our understanding of the total environment.

Landscape sensitivity is viewed in terms of the response of landscapes and landforms to changes in geomorphic processes, to shifts in climatic parameters and to human disturbance. The book contains empirical studies, overviews and modelling papers, organized into three main sections. The first relates sensitivity to geomorphic processes and climate change, the second to land-use change and the third to built environments.

### **Lowland Floodplain Rivers: Geomorphical Perspectives**

Edited by P. A. Carling and G. E. Petts

The introductory chapter of this book provides a comparative analysis of upland and lowland rivers focusing on the relative influences of longitudinal, lateral and vertical process gradients. The following 14 chapters focus on four themes: channel hydraulics, hydrochemical dynamics, morphological changes, and interactions between hydrology, geomorphology and ecology. The papers represent all the major themes of interest to fluvial geomorphologists: process dynamics (hydrological, hydraulic and chemical), short-term channel variations, long-term landform changes, ecological interactions and river management.

This book is the outcome of the September 1990 meeting of the BGRG in Loughborough on Fluvial Dynamics of Lowland Rivers.

### **Vegetation and Erosion: Processes and Environments**

Edited by J. B. Thornes

The control of geomorphic processes by plants has been studied for many years. In this book a wide range of this material is reviewed and fresh research is presented. The material covers theoretical, empirical and laboratory investigations from a wide range of global environments. In addition, a variety of processes, including hillslope weathering, fluvial

and aeolian processes are discussed in relation to the interaction between morphology and plant cover, mass and composition.

The book will be of interest to scientists in a variety of disciplines, including geomorphologists, ecologists, hydrologists and civil engineers.

### **Soil Erosion on Agricultural Land**

Edited by J. Boardman, I. D. L. Foster and J. A. Dearing

This book contains the first state-of-the-art review of erosion research. It includes a series of major review papers covering substantial areas of this wide field. Management, policy and economic issues are covered, together with the physical processes of erosion. Many of the current debates are reflected in the articles: the problems of modelling; on-farm versus off-farm costs; persuasion or enforcement of conservation.

A broad geographical area has been covered in the book and the temporal range spans from Iron Age erosion, through the recording of current rates, to the prediction of future rates. Problems associated with erosion are also dealt with, for example, chemical pollution of lakes and watercourses, and damage to property by runoff.

### **Floods: Hydrological, Sedimentological and Geomorphological Implications**

Edited by K. J. Beven and P. Carling

Floods are the extremes of the hydrological record, and are events of large magnitude. They are of interest to government authorities, water supply and waste disposal bodies, the emergency services, insurance agencies and many others. Planning for and dealing with the effects of flood events can be facilitated by greater scientific understanding of the mechanisms involved.

Topics covered in this book include the latest developments in describing flood flow generation, interpretation of flood sediments, reconstruction of flood magnitude and other aspects of floods, as well as an assessment of the effects of floods within the framework of longer term landform evolution. Contributors are from a range of disciplines, but have a common interest in the dynamics of fluvial floods and their effect on the landscape.

### **Geomorphology in Environmental Planning**

Edited by J. M. Hooke

Effective environmental management demands a balance of a number of scientific disciplines. Since geomorphology is concerned with alterations to the Earth's surface, the geomorphologist can play a major role in the formulation of plans and policies which take account of geomorphological processes and impacts. This book will assist geomorphologists to become involved in public policy-making and will show environmental planners, managers and engineers what geomorphology has to offer. A number of topical themes are covered, including afforestation, soil erosion, land use planning, quarry restoration and the controversial issues of river channel and coastal protection.

### **Environmental Change in Drylands: Biogeographical and Geomorphological Perspectives**

Edited by: A. C. Millington and K. Pye

*Environmental Change in Drylands* deals with the ecological and geomorphological responses to both climate and anthropogenic change in drylands. Change in both processes and the resulting forms (i.e. landforms and plant communities) is covered. An important element of many of the studies presented is the link between vegetation responses to external change and the functioning of geomorphological processes.

This volume, based on a symposium organized by the Biogeography Research Group, and the British Geomorphological Research Group, continues the current trend of analysing recent palaeoenvironmental change in order to understand and control present-day systems. Examples of dryland evolution are presented by an international group of authors and include the Kalahari, California, north west and north east Africa, Australia, southern Europe and China.

Desertification is one of the most public faces of environmental change and this timely research book, drawing on the recent past, will become an important primary source which will, in turn, inform the policy debate in the future.

### **Process Models and Theoretical Geomorphology**

Edited by: M. J. Kirkby

*Process Models and Theoretical Geomorphology* presents a comprehensive review of modern modelling approaches, techniques and applications

in geomorphology. The book is based around a central theme of theoretical geomorphology and includes a variety of fieldwork applications representative of the wide range of activity presently undertaken in this field.

The papers fall naturally into four groups: tectonic and general approaches; channel processes; valley heads, and applications. Many contributions reflect the main areas of research in theoretical geomorphology, whilst others are focused around process themes.

Issues discussed include stream head hollow stability and its role in determining drainage density, as well as processes involved in gravel-bed channels, in particular grain sorting and downstream grain size. Other topics covered include soil erosion, coastal processes and tectonic models. The chapters on numerical models represent important new developments in this subject, with relevance across environmental science and hydrology.

Authors are internationally based, drawn from the USA, Canada, Europe, Australia and China. The papers cover a wide range of themes, providing a stimulating mixture of theoretical research and field work applications, and representing an instantaneous cross-section of recent geomorphological research.

### **Geomorphology and Land Management in a Changing Environment**

Edited by D. F. M. McGregor and D. A. Thompson

*Geomorphology and Land Management in a Changing Environment* highlights the practical application of geography to environmental management, through examination of the ways in which geomorphology is relevant to, and contributes to, proper management of land resources.

Increasingly, effective land use is seen as dependent on the integration of geomorphological principles and practice within the decision-making process. The book elucidates the environmental effects of land management practices in terms of the geomorphological systems in which they take place and in the context of an environment subject to uncertainty and change. It critically reviews the progress of 'applied geomorphology' in addressing the issues of practical applicability of geomorphology, and then focuses on four major themes within this interaction: ground instability and land management; the effect of land use on the hydrological and erosional response of geomorpho-

logical systems; modelling geomorphological response to environmental change; and geomorphological aspects of the management of environmental risk.

By integrating a wide range of case studies from the developed and the developing world, the book offers a distinctive insight into the range and utility of geomorphological research, and pointers for environmental planners and decision-makers at all levels.

### **Rock Weathering and Landform Evolution**

Edited by: D. A. Robinson and R. B. G. Williams

*Rock Weathering and Landform Evolution* brings together a series of important studies on rock weathering by leading researchers, and illustrates the diversity of approaches and techniques that are currently being used by geomorphologists to study weathering processes and responses.

The book commences with a number of research studies and review chapters on weather processes

and weathered products. This is followed by several discussions of the weathering of cut or dressed rock in urban and coastal environments. Contributors then examine the application of weathering and weathering rates to the dating of deposits or rock surfaces. The final section of the book comprises studies of the relationship between weathering and landforms in a variety of climatic environments.

The contributions included in this book cover a wide range of topics and demonstrates the many advances that are being made by researchers investigating rock weathering. Some of the studies deal with state-of-the-art technology, others with the very traditional geomorphological skills of observation and deductive reasoning, backed up as necessary by statistical analysis.

This volume is the first collection of papers on weathering published for many years, and provides a wealth of information not just to geomorphologists but also to geologists, engineers, architects and archaeologists.

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## INTERNATIONAL GEOMORPHOLOGY SERIES

### **Cold Climate Landforms**

Edited by D. Evans

*Cold Climate Landforms* is a collection of 21 papers previously published in languages other than English which span the period 1909–1992. They have been selected as benchmark contributions from a group of 30 distinguished authors and have been translated into English for an international audience of glacial and periglacial geomorphologists. Some papers are acknowledged classics and have been copiously referenced since their original publication. Others contain insightful observations which are regarded as having been well ahead of

their time and worthy of reproduction in view of recent advances in cold climate research. The 21 papers have been selected after consultation with numerous eminent cold climate researchers and are grouped under the headings of Permafrost Landforms and Regional Reconstructions (five papers), Periglacial Landforms (six papers), Glacial and Fluviglacial Landforms (four papers), Marine and Lacustrine Landforms (two papers), Polygenetic Landforms (one paper), Cold Climate Slopes (two papers) and Rock Glaciers (one paper); they therefore cover an extensive subject area as well as a wide time period.